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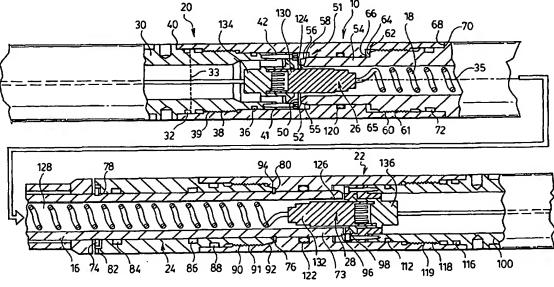
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(54) Title: TOOL MODULE CONNECTOR FOR USE IN DIRECTIONAL DRILLING



(57) Abstract: A tool module interconnect (10) for interconnecting to adjoining modules for insertion in a drill string features a system which permits making the electrical interconnection before assembly of the mechanical connections to interconnect the tool modules together. The interconnect comprises a hollow interconnect body (18) open at both ends. A wire harness (18) is provided in the hollow body with terminal end connectors (26, 28) accessible from the respective open end of the interconnect body. The interconnect is adapted for attachment to adjoining modules, where at least one end has a rotatable threaded sleeve (24) for connection to a tool module by a threaded collar.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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a. classification of subject matter IPC 7 E21B17/02 E21B47/01 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages Category 1 US 6 158 532 A (DOPF ANTHONY ROBERT A AL) 12 December 2000 (2000-12-12) See abstract figures 1,2 WO 95 22679 A (ADVANCED MINING TECH 1 Α ; HARDCASTLE PHILIP J (AU)) 24 August 1995 (1995-08-24) See abstract figure 2 1 US 4 660 910 A (DIEKEN JOHN M ET AL) A 28 April 1987 (1987-04-28) column 3, line 9 - line 24; figures 3,4 1 US 4 265 305 A (HOLCOMB NORMAND P ET AL) Α 5 May 1981 (1981-05-05) column 5, line 45 - line 57; figure 1B Patent family members are listed in annex. Further documents are listed in the continuation of box C. X X Special categories of cited documents: "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *E* earlier document but published on or after the International filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of mailing of the international search report Date of the actual completion of the international search 08/09/2003 2 September 2003 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 · Dantinne, P

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